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AIRSPACE CONTROL AUTHORITY IN STABILITY  
OPERATIONS: THE ROLE OF THE UNITED STATES AIR FORCE  
IN REBUILDING AFGHANISTAN'S NATIONAL AIRSPACE  
SYSTEM

by

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### ***Abstract***

Despite a decade of war with the former Soviet Union, followed by years of harsh Taliban rule, Afghanistan still had a rudimentary national airspace control system prior to the start of Operation Enduring Freedom (OEF). However, very little of Afghanistan's air traffic infrastructure could be leveraged to safely support Coalition flight operations. Therefore, to ensure aviation safety, U.S. military forces shouldered the burden of providing airspace control for the country, to include all civil operations, and continue doing so to this day. This paper examines the United States Central Command Air Forces' (USCENTAF) role in rebuilding Afghanistan's national airspace system during stability operations. Most issues presented are from the operational-level of command but have significant strategic-level implications. Ranging from the challenges of mixing military and civil aircraft operations to affecting aviation commerce of a nation, the analysis of these issues is focused through the doctrinally recognized lens of an airspace control authority (ACA).

## ***Introduction***

At this moment United States Air Force (USAF) Airmen and civilian contractors are controlling the sovereign airspace over two different nations, neither of which is the United States. These two countries of course are Iraq and Afghanistan. Following back-to-back major combat operations in each country, the USAF has found itself in the midst of leading efforts to establish and run an airspace control infrastructure that safely integrates military and civilian aircraft operations. Both countries share a similar history of conflict and instability under an oppressive regime, which in turn caused severe degradation of their respective civil aviation systems. Although the USAF is engaged in similar efforts in each country, this paper takes Afghanistan as a case study in order to analyze the critical role the USAF is playing in stability operations.

As of the writing of this paper, Afghanistan is less than a month away from the official opening of a countrywide area control center (ACC) offering instrument flight rules (IFR) service to all aircraft operating within its borders.<sup>1</sup> This is a significant accomplishment given that Afghanistan has only 13 indigenous air traffic controllers, all of whom are older than 65 years of age.<sup>2</sup> Although they are using a mix of USAF contract and Afghani controllers, this historic event marks a first-ever for the country's rudimentary aviation infrastructure.<sup>3</sup> How they arrived at this point and what future implications the USAF should take from this serve as the focal point of this paper.

To help set the stage, this discussion begins with a brief history of airspace control in Afghanistan to include the initial bed down of military air traffic control (ATC) and the securing of Afghan airspace in support of Operation Enduring Freedom (OEF). Presented next is the emergence of United States Central Command Air Forces Commander (COMUSCENTAF) as

the airspace control authority (ACA) for Afghanistan. Finishing the background discussion is a description of the transition from military ATC to contingency contract control as well as the stand-up of the nationwide ACC.

After the background stage is set, five overarching areas are examined to illustrate the unique challenges of an ACA during stability operations. First, the current joint doctrinal roles and responsibilities are discussed illustrating the gaps between theory and practice. The second area addresses the challenges that caused COMUSCENTAF to operate outside the scope of an ACA from doctrinal and legal perspectives. Third, historical illustrations are used to demonstrate why recent conflicts, prior to OEF, have not challenged the role of an ACA in sustaining stability operations, thereby explaining why this important mission area has gone unnoticed by the USAF. The need for greater focus on integrating military and civilian aircraft operations throughout stability operations is the fourth issue presented. Finally, the issues associated with outsourcing ATC in a combat zone are examined to offer other considerations for their possible future use.

### ***Background***

Joint Publication 5-00.1, *Joint Doctrine for Campaign Planning*, lists the four notional phases of a joint campaign as deter, seize initiative, decisive operations, and transition.<sup>4</sup> These phases are commonly referred to as “Phase I” through “Phase IV.” An ACA has roles and responsibilities that span all phases. However, the focus of this paper deals with those challenges an ACA faces during the transition phase (Phase IV). For standardization purposes throughout this paper, the transition phase is referred to as “stability operations” to more closely reflect the reality of ongoing operations in Afghanistan.

Whether military or civilian, when an aircraft takes flight it operates under one of two

internationally recognized rule sets; visual flight rules (VFR) and instrument flight rules (IFR). While operating VFR, aircraft fly under see-and-avoid rules, meaning the pilot in command is responsible for his/her own separation from other aircraft and as such is restricted from flying through clouds (or any visually obscuring weather phenomena). Aircraft operating under VFR may or may not be in radio contact with an ATC facility. In contrast, aircraft operating under IFR must be in radio contact with a designated control facility and therefore provided separation from other aircraft while in the control facility's designated airspace. All civilian air carriers operate almost exclusively under IFR due to the increased margin of safety it affords. The fact that Afghanistan will be able to operate an IFR-capable national airspace system marks a significant advancement toward building a modern airspace control infrastructure. The following quote clearly demonstrates COMUSCENTAF's commitment toward that end.

Aviation safety in Afghanistan is one of my greatest concerns and one that I know you share. Along with safety, I also place a high priority on making sure airspace is available to civilian and Coalition military users alike. I trust we share a similar vision for aviation in Afghanistan, a vision that includes an air traffic control system capable of supporting the full spectrum of air operations.<sup>5</sup>

- Combined Forces Air Component Commander, Lieutenant General  
Moseley to the Afghani Minister of Transportation, 27 January 2003

Before OEF, the Afghan ATC system could have been described as undeveloped, unregulated and barely functioning. The entire Afghani civil aviation infrastructure consisted of a flight information center (FIC) that serviced the entire country with a workforce of 13 controllers providing basic VFR flight advisory services.<sup>6</sup> In addition to the FIC, a handful of radio operators staffed only a few of the country's 22 airports.<sup>7</sup> None of the airfields had operable navigational aids, airfield lighting of any kind, or radar equipment.<sup>8</sup> Aircraft entering or overflying the country were responsible for seeing and avoiding other aircraft. Aircraft flying between airfields within the country used a common air-to-air frequency to announce their



position and progress to other airborne aircraft. Loosely analogous to the U.S. Federal Aviation Administration (FAA), Afghanistan's Ministry of Civil Aviation and Tourism (MOCAT) provided limited oversight of Afghan aviation from its offices located in the country's capital city of Kabul.<sup>9</sup>

The FIC, also located in Kabul, was established just prior to 1970 to help support the country's growing aviation system.<sup>10</sup> The FIC is a ground-based communications facility operated by air traffic controllers responsible for monitoring all aircraft entering, leaving, and overflying the country. Approximately eight Afghani controllers were trained in the U.S. at the FAA ATC Academy during the 1960s.<sup>11</sup> Upon returning to Afghanistan, the initial eight controllers trained an additional eight personnel. Of the 16 that received training, 13 remain on the job to this day.<sup>12</sup> As an interesting side note, during the Taliban regime, the controller's wages (of roughly 10 US dollars per month) were withheld. However, controllers were forced to continue work to ensure no interruption in the revenue flow generated by overflight fees charged to commercial international air carriers.<sup>13</sup>

To understand the current state of Afghanistan's national airspace system, a quick review of its civil aviation sector is also in order. Afghanistan's sole airline, nationally owned, was established in January 1955 as Ariana Airlines.<sup>14</sup> Four World War II surplus aircraft, located in India, were ferried to Afghanistan for use in the upstart airline to provide domestic flights.<sup>15</sup> In 1957, an agreement was negotiated with Pan American World Airways (PanAm) whereby 51% of Ariana Airlines shares were owned by various parts of the Afghan Government and the remaining 49% was owned by PanAm.<sup>16</sup> As PanAm was helping to develop Ariana, as a national carrier, it was also funding the development of air facilities in the country. Two main airfields built-up during this time were Kandahar and Kabul, which became the only two

international airports in the country.<sup>17</sup> By 1985, PanAm ended its partnership with Ariana. Despite this, the national Afghan carrier was able to continue operations into the early 1990's. By 1993, international sanctions against the fundamentalist regime had finally curtailed all Ariana flights.<sup>18</sup> During OEF, Ariana lost six of its eight planes during the bombing of airfields in Afghanistan.<sup>19</sup> Since then, Ariana has begun regenerating its fleet. Ariana currently owns and operates three Airbus A300s, four Boeing 727s, and one Antonov 24.<sup>20</sup>

*Securing Afghanistan Airspace: The Early Stages of Operation Enduring Freedom*

U.S. officials, in coordination with the International Civil Aviation Organization (ICAO) issued a Notice to Airmen (NOTAM) effective 16 September 2001 effectively closing Afghani airspace to all civil traffic.<sup>21</sup> Less than a month later in October, the U.S.-led Coalition began pounding Al Qaeda and Taliban forces with air strikes. Unopposed by Taliban aircraft, coupled with a virtually non-existent ground-to-air threat, Coalition aircraft very quickly gained control of Afghan skies. Orchestrating the aerial ballet of tactical aircraft was USCENTAF's Combined Air Operations Center (CAOC) located in Saudi Arabia. Airspace was controlled using a mix of conventional air traffic control and combat airspace management. The concept was based on VFR and procedural rule sets with surveillance by airborne command and control assets when and where available. Lastly, co-located with the CAOC, a Regional Air Movement Control Center (RAMCC) stood-up in January 2002.<sup>22</sup> The RAMCC served as a scheduling agency for fixed-wing airlift to help minimize ramp space congestion at many of Afghanistan's airfields. As the mission in OEF transitioned to stability operations, the deconfliction provided by RAMCC enhanced the safety and efficiency of military and humanitarian assistance airlift operations.<sup>23</sup>

By January 2002, conventional air traffic control began establishing terminal control of

the airports located in Kandahar and Bagram. Kandahar International Airport was the site where U.S. Army Rangers conducted an airborne operation in the first large-scale American ground action in Afghanistan.<sup>24</sup> Kandahar was a former Soviet air base that was used in the nine-year war against the Mujahideen.<sup>25</sup> Interestingly, the U.S. funded the construction of the main terminal building as part of an aid package given to Afghanistan after the Soviets withdrew and before the Taliban took over, which was about a four-year period.<sup>26</sup> The U.S. Army established terminal ATC operations at Kandahar. While the Army was busy at Kandahar, USAF personnel were busy establishing similar operations at Bagram. Both locations soon established 24/7 ATC operations consisting of radar approach control with precision capability. See Appendix B for the general location of these sites.<sup>27</sup>

#### *Emergence of an Airspace Control Authority*

For the purposes of this paper, it is recognized that ACA is delegated from the respective Combatant Commander.<sup>28</sup> Although the framework of this discussion details the USAF's role, the challenges presented herein are applicable to any service component that may be delegated the responsibilities of an ACA in future conflicts. For OEF, COMUSCENTAF was designated the ACA for Afghanistan by the Commander, U.S. Central Command.<sup>29</sup> The primary role of an ACA is to establish an airspace structure and corresponding command and control architecture to enable the safe employment of airpower.<sup>30</sup> One of the key responsibilities of an ACA is to ensure coordination with civil aviation authorities to ensure deconfliction of military and civilian flight operations. The first formal step toward establishing this coordination was the signing of a three-way Memorandum of Arrangement (MOA) between MOCAT, ICAO, and COMUSCENTAF in February 2002.<sup>31</sup> A key excerpt from the MOA reads as follows:

In order to enhance the safety in civil aviation and to facilitate aviation commerce within Afghanistan, the Ministry of Civil Aviation and Tourism of Afghanistan and the Combined Forces Airspace Control Authority (ACA) for the Coalition mission in Afghanistan acknowledge that, for an interim and limited period, the ACA will control the airspace within Afghanistan. The ACA will exercise this control for so long as United States military operations require or until such time as the Ministry of Civil Aviation and Tourism is capable, either independently or through ICAO assistance under appropriate technical co-operation projects, of assuming responsibility for air traffic services and aviation facilities within Afghanistan.<sup>32</sup>

### *Transition From Military to Civilian Contract Air Traffic Control*

In November of 2001, less than one month after the start of OEF, the then COMUSCENTAF, Lieutenant General T. Michael Moseley, was already seeking an exit strategy for critical support assets.<sup>33</sup> He turned to the Air Staff for help inquiring what it would take to reconstitute ATC assets deploying into Afghanistan.<sup>34</sup> The impetus behind COMUSCENTAF's question was two-fold: (1) prevent military ATC assets from becoming stuck in a long-term commitment of controlling Afghan skies, and (2) free-up the low-density, high-demand assets for possible future use in Iraq.<sup>35</sup>

By December 2001, a team composed of representatives from the office of the Director of Operations, USAF (AF/XOO) and Air Force Flight Standards Agency (AFFSA) deployed to the USCENCOM area of responsibility on a fact-finding mission.<sup>36</sup> To help answer COMUSCENTAF's query, the Air Staff team developed a three-phase plan. The Air Staff's concept plan (CONPLAN) was later briefed to and well received by the COMUSCENTAF. Now, the responsibility to 'operationalize' the CONPLAN fell to the Combat Plans staff at Headquarters USCENAF. The author of this paper became the lead project officer for this effort. The author led all initial site surveys in Afghanistan and surrounding countries and eventually oversaw the entire transition to contract ATC.<sup>37</sup>

The USCENAF staff organized a 'tiger team' composed of representatives from the

Joint Chiefs of Staff J5, USCENTCOM J5, USCENTAF A3 and A4, Assistant Secretary of the Air Force Financial Management and Comptroller (SAF/FM), AF/XOO, AFFSA, Air Combat Command, as well as ICAO. The team's charter entailed finding an outsource solution and identifying funds, with a focus on the shortest contractor deployment timeline. Of note at this point is that the original plan called for reconstituting military ATC assets (personnel and equipment) within Afghanistan. However, with only two locations in-country and three additional locations in surrounding nations, the tiger team decided to recommend the outsource of all five locations in support of OEF. This approach enabled maximum redeployment of joint ATC assets.

In late 2002, the tiger team formally convened twice in Washington D.C. The first meeting resulted in drafting the initial statement of work (SOW). At the second meeting, the SOW was finalized and a contract vehicle was selected. In the end, the team chose to outsource using the Air Force Contract Augmentation Program (AFCAP).<sup>38</sup>

AFCAP is an established contract that has already been competed and awarded. The current contract holder is Readiness Management Support, L.C. of Panama City, Florida. They have held the AFCAP contract since 1997 and were awarded an extension in February 2002 with seven option years.<sup>39</sup> "AFCAP was conceived and implemented to fulfill Air Force Major Commands' stated need for a contract force multiplier to augment worldwide contingency operations."<sup>40</sup> To this point in AFCAP's history, their focus was civil engineering-type support. However, their ability to subcontract enabled them to find willing vendors to take on this initiative. This was AFCAP's first attempt at outsourcing a direct operations support function such as air traffic control.<sup>41</sup> See Appendix A for a timeline of key events for outsourcing military air traffic in support of OEF.

*Kabul and the En Route Center – The Role of the ACA Expands*

By December 2003, USCENTAF and AFCAP successfully outsourced ATC at four airfields in support of OEF. As previously stated, the requirement called for the outsourcing of five locations, one airfield, located in Pakistan, was later removed from consideration. Of the four airfields outsourced, two were located in Afghanistan (Bagram and Kandahar), one in Kyrgyzstan (Karsi-Khanabad), and one in Uzbekistan (Bishkek-Manas). The outsource effort had successfully reconstituted over 160 Army, Marine and Air Force controllers. However, it did not address the growing concern of increasing overflight and en route air traffic.

Four months after the beginning of hostilities in support of OEF, civil airlines resumed overflight of Afghanistan and Coalition airlift operations were on the increase moving military equipment and personnel. At the same time, there was also an increase in air traffic as the International Security Assistance Force (ISAF), international organizations, non-governmental organizations and other civil aircraft operators focused their attention on the region.<sup>42</sup> This sharp rise in air traffic highlighted a need for positive en route control within the country.

Now that terminal control was established in support of OEF, USCENTAF and AFCAP planners teamed-up once again to bring IFR control to the country of Afghanistan. A joint site survey was conducted in January 2004; the results were briefed to COMUSCENTAF in February. With COMUSCENTAF approval of the project, AFCAP was given formal notice to proceed in March 2004 with establishing an en route control center in the nation's capital of Kabul. Over the next year, the daunting task of developing a comprehensive airway system and installing communications equipment across the country as well as brokering ATC letters of agreement with all five surrounding countries was accomplished.

### *Challenges for an ACA During Stability Operations*

Thus far, this paper has presented the history of airspace control in Afghanistan, from its early beginnings to present-day Coalition military operations in support of OEF. The discussion will now transition toward better understanding the challenges faced by an ACA during stability operations. In doing so, five main categories are analyzed: joint doctrine, scope of ACA, historical illustrations, integrating civil and military aircraft operations, and finally outsourcing military ATC in a combat zone.

#### *Current Doctrine*

According to Joint Publication 3-52, *Joint Doctrine for Airspace Control in the Combat Zone*, the Joint Force Commander (JFC) designates the ACA and defines the relationship between the ACA and component commanders.<sup>43</sup> Typically, the JFC will delegate ACA to his Joint Force Air Component Commander (JFACC). The JFC will normally assign JFACC responsibilities to the component commander having the preponderance of air assets and the ability to effectively plan, task, and control joint air operations.<sup>44</sup> As a reminder, COMUSCENTAF was the delegated ACA for both OEF.

The basic responsibility of an ACA is to establish an airspace control system that enables airpower to meet the JFC's objectives. The scope of an ACA's responsibilities is defined by the JFC and derived from current doctrine and operating practices. Generally, U.S. joint doctrine and operating practices address coordination of airspace command and control between military forces (joint and Coalition) fairly well. In other words, joint doctrine clearly defines ACA roles to support combat operations. In contrast, joint doctrine minimally addresses the role of ACA during stability operations. For example, current doctrine states that an ACA "should provide for integration of the airspace control system with that of the host nation."<sup>45</sup> Doctrine does

recognize the importance of coordinating with host nation aviation authorities. However, it fails to address the issue when the civilian infrastructure is non-existent or nonfunctioning.

During the transition to stability operations in the recent conflicts in Afghanistan and Iraq, the first main challenge encountered by the ACA was the lack of functioning institutions in either country with which to coordinate aviation issues. Neither country had the infrastructure to oversee the resumption of control of their sovereign airspace. In both cases, COMUSCENTAF exercised his ACA to fill the void using military and civilian contract assets and personnel. In doing so, COMUSCENTAF operated outside the scope of doctrinal guidance by assuming control of all Afghani (and Iraqi) airspace.

#### *Operating Outside the Scope of Airspace Control Authority*

Operating outside the scope of doctrinal guidance and current operating practices in Afghanistan was necessary to ensure military and civil aviation safety. However, doing so in the absence of formal guidance left COMUSCENTAF faced with unique challenges having strategic-level implications. Examining three specific challenges or issues is the next area of discussion. First, a look at overflight fees and how an ACA can directly influence the revenue gained or lost by a nation. The second two items presented take a look at key documents and their associated implications. These include the memorandum of arrangement noted earlier and the Afghan Aeronautical Information Publication.

Commercial international air carriers pay fees to overfly each country on their route of flight. The revenue generated from these overflight fees is ideally supposed to go towards the respective nation's civil aviation structure for maintenance and modernization. However, it is up to each nation how they choose to utilize those funds. For some underdeveloped nations, such as Afghanistan, this type of revenue is the only consistent source available to support their aviation



infrastructure.<sup>46</sup>

Prior to 9/11, Afghanistan was averaging 120 commercial overflights per day.<sup>47</sup> Assuming a charge of \$400 per overflight, that equates to roughly \$48,000 per day or \$1.4 million per month in revenue.<sup>48</sup> That all changed on 16 September 2001 when Afghan airspace was closed to commercial airlines.<sup>49</sup> For commercial air carriers transporting passengers from Asia to Europe, overflight of Afghanistan offers the most direct routing.<sup>50</sup> An air carrier that is required to fly an alternate route around Afghanistan causes, on average, an additional thirty minutes of travel time.<sup>51</sup> Every extra minute spent aloft for an airline equates to increase fuel burn, which cuts into their bottom line. According to the International Air Transport Association (IATA), international airlines are likely to spend \$76 billion on jet fuel this year compared to \$63 billion in 2004 and \$44 billion in 2003.<sup>52</sup> Therefore, the most direct routing for air carriers is most economically desirable.

Shortly after the fall of the Taliban regime, international commercial air carriers expressed keen interest in resuming overflights of Afghanistan. Adding to this were the numerous governmental and non-governmental agencies desiring access to Afghan airspace for the purpose of delivering humanitarian aid to various regions in the country. The problem for COMUSCENTAF was managing the extremely complex task of converting “battle space” into a national airspace structure capable of safely integrating civil aviation with ongoing military flight operations. In an ideal situation, control of Afghan airspace would have reverted to civil aviation authorities, thus allowing COMUSCENTAF to focus strictly on coordinating ongoing military flight activities with the host nation. This was not to be the case in Afghanistan. Nevertheless, COMUSCENTAF was able to facilitate the initial flow of humanitarian relief organization (HUMRO) flights into Afghanistan as early as January 2002.

The adage of “if you build it, they will come,” was certainly applicable to Afghanistan’s reopened airway system. For example, even though commercial air carriers were now allowed to overfly Afghanistan, they were requesting more altitude blocks to enable more overflights. The problem for the ACA was balancing ongoing Coalition military needs for airspace with those of the international civil aviation community. For example, in support of ongoing ground operations, Coalition aircraft (namely intelligence, surveillance and reconnaissance platforms) required certain operating altitudes that directly conflicted with lower altitudes needed to allow increased capacity on the airways designated for civil overflights. The inability to provide positive separation of military and civil operations caused delays in opening the lower altitudes for civil use. In other words, a military authority (the ACA) was limiting the overflights of a sovereign nation and thereby limiting the potential overflight revenue that country could generate.

The next two issues, which further illustrate the challenges of operating outside the doctrinal scope of ACA, deal with two key documents. One covers the delineation of authority and a second defines Afghan national airspace. As each document is examined, note that COMUSCENTAF authored both documents, in coordination with MOCAT.

As cited earlier, on 11 February 2002, an MOA was signed between ICAO, the Interim Government of Afghanistan, and COMUSCENTAF (under his authority as ACA).<sup>53</sup> At the time, all parties agreed that entering into the agreement was practical and necessary to ensure the safety of Coalition and civil aviation. The concept of an ‘ACA’ is a U.S. military doctrinal term, and not part of civil aviation’s vernacular. The simple notion of lacking a common language with the international civil aviation community made initial coordination difficult. Another problem stemmed from the fact the “[the MOA] was being utilized in a manner which reflected

an effort by the Afghan government to authorize the ACA to exercise a limited degree of Afghan sovereign authority.” “[W]hile the Afghan government has the authority to share its sovereign authority, the ACA does not have independent authority to accept it.”<sup>54</sup> Although, taking control of the airspace was necessary, the problem remained that the ACA did not have the independent authority to control civil airspace.<sup>55</sup> If the ACA is required “to control civil airspace in Afghanistan beyond that which is necessary to maximize the effectiveness of combat operations, the authority to negotiate an international agreement in accordance with provisions of DoDD 5530.3 and AFI 51-701 is required.”<sup>56</sup> In other words, a new agreement is required necessitating USCENTCOM-level or higher coordination.

The second document to be discussed is Afghanistan’s Aeronautical Information Publication (AIP). An AIP is a publication “issued by or with the authority of a state, containing aeronautical information of a lasting character essential to air navigation” within that nation.<sup>57</sup> In January 2002, COMUSCENTAF determined that Afghanistan’s AIP had not been updated since 1990. In preparing to authorize resumption of civil flight operations, COMUSCENTAF needed a fully revised AIP. USCENAF planners quickly drafted a new AIP which listed airfields and airways approved for civil use. The AIP served to deconflict military from civil aircraft operations. However, there were conflicts of interest that arose from its use.

The AIP put COMUSCENTAF in a challenging position to formulate the rules to maintain aviation safety but no authority to correct civil violators. “Disciplining carriers would impact the sovereign rights of both Afghanistan and the state to which the disciplined aircraft belongs.”<sup>58</sup> For example, Coalition aircraft reported instances of sighting aid relief aircraft flying well off the prescribed VFR civil airways (presumably cutting corners to save gas). As one can imagine this creates a significant hazard to air navigation in that flying “off airway”

equates to flying through airspace reserved for ongoing military operations. Another example involved the Afghan national airline, Ariana. To ensure maximum deconfliction with Coalition aircraft, the AIP specified that all civil operations were only allowed to operate within Afghanistan during daylight hours and only under VFR. Despite this guidance, on a few occasions, Ariana chose to take-off in instrument meteorological conditions (IMC). Incidents such as these prompted letters from the COMUSCENTAF to the Afghan Minister of Transportation. The following is an excerpt from one such letter:

I also ask for your help in reminding Ariana Airlines of the importance of complying with the guidelines in the Aeronautical Information Pamphlet Supplement and of coordinating its departures and arrivals. I'm concerned that Ariana Airlines could find the safety of its aircraft and passengers diminished [as well as] the safety of Coalition military aircraft operating in Afghanistan could also be jeopardized. Together, our combined efforts have been successful in creating the safest flying environment currently possible.<sup>59</sup>

- Combined Forces Air Component Commander, Lieutenant General  
Moseley to the Afghani Minister of Transportation, 27 January 2003

This was a rather challenging position for COMUSCENTAF, in that MOCAT delegated him the responsibility to determine the rules to ensure aviation safety within their nation. However, even MOCAT lacked the resources necessary to enforce the rules set forth in the AIP.

#### *Historical Illustrations: Why Have We Not Learned?*

Lessons drawn from previous conflicts, to include successes and failures, generally help to shape how military forces organize, train and equip in preparing for future conflict. For example, the concept of the RAMCC, discussed earlier, actually originated during the Balkans conflict in the mid-1990s.<sup>60</sup> The concept was revived to support stability operations in Afghanistan and later in Iraq. However, given the numerous conflicts and subsequent stability operations that U.S. military forces have recently been involved, why is the current doctrinal scope of an ACA so narrow?

Recent conflicts involving U.S. military forces, starting with Operation Desert Storm, have all focused on the decisive operations role of an ACA. For example, the decisive combat operations to expel Iraqi forces from Kuwait are well documented. At the end of that war, Iraq was contained using airpower. There was little to no need for civil military coordination due to the nature of the ‘no fly’ zones established in the south and later in the north. In another example, the Bosnian conflict left that country with neither the funds nor the technical expertise to assume control of its sovereign airspace.<sup>61</sup> In this instance, U.S. forces were spared the challenges of rebuilding and running Bosnia’s airspace. That responsibility fell to countries in the NATO-led Stabilization Force.<sup>62</sup> Beginning in 1997, when civil air traffic was restored, the French contingent took control of the lower airspace structure (9,000 feet and below) and everything above that fell to Serbian and Croatian air traffic controllers. To this day, Bosnia still lacks the necessary en route radar for regional flight control, a necessary component needed to monitor and control its own airspace.<sup>63</sup> Given these two examples, it is clear that recent conflicts, prior to OEF, have not challenged the role of an ACA (from a USAF perspective) in transitioning to stability operations. The lack of significant challenge during stability operations, prior to OEF/OIF, perhaps explains why joint doctrine minimally addresses airspace control during stability operations.

#### *The Challenges of Integrating Military and Civilian Aircraft Operations*

It is now time to explore the fourth main area demonstrating the challenges faced by an ACA during stability operations; integrating military and civilian air operations. One of the most critical factors affecting aviation safety during stability operations is deconflicting civil and military traffic without overly restricting either one.

The first issue regarding the challenges of mixing civil and military operations entails the

documents that military aircrew use for guidance to fly their missions versus the documents that civil operators use. As previously discussed, Afghan's AIP is the source document for civil operators; it informs them of everything they need to know in order to operate safely in Afghanistan airspace. Coalition aircrews however, use different sources to plan and execute their missions.

All aircraft flying in support of OEF are assigned missions via an air tasking order (ATO). Accompanying the ATO is a document called an airspace control order (ACO). Both documents are planned, produced, and disseminated by the USCENTAF's CAOC. Because both documents are classified (releasable to Coalition members only), they are not available for civil operators. The ACO, for example, defines the airspace structure to be used for military operations and encompasses all civilian airspace as well (e.g., civil airways). The AIP, as noted earlier, defines airspace for civil use. The problem in this arrangement is two fold. First, there are two completely different sources of information for aircraft operators flying in the same country. CAOC planners must ensure that any changes in one database will not conflict with the other. As a side note, the lack of proper training for CAOC planners is addressed in a later section. Second, CAOC planners must balance what information civil operators need-to-know versus what is classified and therefore not releasable. For example, in Afghanistan, Coalition airlift aircraft fly along routing that has a different ground track than that of the civil airways. Where the military and civilian flight routes cross, aircraft are procedurally deconflicted by altitude restrictions. In this case, since the military routes are classified, the civil operators need to fly as directed in the AIP. Therefore, any changes to either a civil airway or a military air route must be updated correctly in two different documents.

The second issue presented, regarding the challenges of mixing civil and military

operations, deals with liability. It is undisputed that the USAF is controlling Afghan airspace.<sup>64</sup>

“When the ACA controls airspace in Afghanistan, the USAF is liable for damages that occur based on the negligent or wrongful acts of civilian employees or military members of the USAF, incident to the USAF control of those aircraft.”<sup>65</sup>

The recent tragic crash of an airliner in Afghanistan could raise some difficult questions regarding the issue of liability. On 3 February 2005, a Kam Airline aircraft, Boeing 737-200, with 96 passengers and 8 crewmembers crashed approximately 19 miles southeast of the capital city of Kabul; there were no survivors.<sup>66</sup> The Kam Air flight made contact with Kabul Airport asking for permission to land, however permission was denied due to poor weather, which was described as blizzard conditions.<sup>67</sup> Upon attempting to divert to an airfield in Peshawar, Pakistan, the aircraft collided with mountainous terrain at roughly 9,000 feet.<sup>68</sup>

In this case, the USAF did not act in a negligent manner with regard to control of this aircraft. For unknown reasons, the aircrew chose to operate at low altitude in instrument meteorological conditions, which is contrary to the directives of the AIP. Nevertheless, the questions of “what if” are certainly worth exploring. What if the USAF contract controllers at Bagram<sup>69</sup> had given control instruction to the Kam Air flight causing it to fly into the mountain? In this instance, the USAF would bear a large degree of culpability. Further complicating the situation would be the fact that contract controllers would have been involved. The challenges of contract controllers in a combat zone, is addressed in the next section.

#### Issues Associated With Outsourcing ATC in a Combat Zone

Outsourcing is a fact of life for the U.S. military and will likely become more prevalent.<sup>70</sup> The use of contract controllers and equipment in support of OEF has been and continues to be a successful endeavor for COMUSCENTAF. As cited earlier, over 160 controllers, from three

service components, were reconstituted. On top of that, AFCAP was able to tap into and provide an ATC skill set not found in the USAF -- en route control.<sup>71</sup> When the requirement was established by COMUSCENTAF to provide en route IFR control across the country, AFCAP (through its sub-contractors) took on this pioneering challenge. AFCAP was able to hire mostly retired FAA controllers possessing vast en route center control and management experience.<sup>72</sup> A large benefit to using contract controllers is their time spent on station. Contractors are hired for one-year tours, which affords them the ability to provide greater continuity at each deployed location.<sup>73</sup>

Despite the success of outsourcing ATC using AFCAP, it is imperative this experience not lull the USAF into thinking of this as a “silver bullet” solution to possible future shortfalls. There are issues that the USAF must fully scrutinize regarding the use of contract controllers. Contractors are not subject to the Uniform Code of Military Justice (UCMJ) and therefore are not fully accountable to military authority.<sup>74</sup> Take for example the now infamous events that occurred at Abu Ghraib in Iraq. Contractors were hired to fill Army shortages in linguists and interrogators at the prison.<sup>75</sup> “Four contractors were accused by the Army, along with 23 soldiers, of abusing prisoners. Unlike the troops they work alongside, the contractors were not subject to UCMJ. Instead their cases have been turned over to the Justice Department for further recommendations as to how they are to be handled.”<sup>76</sup> This brings into question the lack of a commander’s span of control since the contractors are not fully accountable to him or her. During Desert Storm, contractors working in Saudi Arabia left the country for fear that chemical weapons might be used.<sup>77</sup> A contractor’s legal obligation is solely to an employment contract, not to their country.<sup>78</sup> If, for example, a food contractor walks off the job, the only impact to the mission would be a drop in morale, as troops would be forced to resort to eating prepackaged



rations. However, what if a contractor, providing a mission critical service, like ATC, were to “walk off the job?”

### ***Recommendations***

To this point, this paper has examined five main areas, all of which serve to illustrate the challenges faced by an ACA during stability operations. The five areas discussed are as follows: doctrine, scope of ACA, historical illustrations, integrating civil and military aircraft operations, and contract ATC in a combat zone. It is now time to look at specific recommendations geared toward helping operational-level planners faced with these issues.

The ACA’s role in Afghanistan should not be dismissed as a historical anomaly. The actions taken by COMUSCENTAF to establish and run a national airspace structure for Afghanistan share many similarities with Iraq. Although the events in support of OIF were not examined in detail in this paper, the references to OIF represent additional evidence of the challenges an ACA encounters when faced with the responsibility of running a sovereign nation’s airspace control system. Therefore, there now exists two back-to-back examples from which to draw lessons. The nature of the ongoing Global War on Terrorism (GWOT), demands that the successes and challenges encountered in stability operations be given equal billing to how the USAF plans and executes decisive combat operations.

The second recommendation involves doctrine. Current guidance in Joint Publication 3-52, *Joint Doctrine for Airspace Control in the Combat Zone*, provides some airspace control planning considerations before and after major hostilities.<sup>79</sup> However, the guidance is predicated on coordination with host nation aviation officials to deconflict military operations from civil. Based on the issues examined in this paper, JP 3-52 should be expanded to include those planning considerations that entail dealing with nations that possess underdeveloped or non-

existent aviation infrastructures. Along with expanded planning considerations, historical airspace vignettes from Phase IV operations in Afghanistan and Iraq should be added to punctuate the importance of planning for airspace control in stability operations.

The third recommendation involves training. The USAF formal training unit (FTU) for air operation centers (AOC) is located at Hurlburt Field, Florida. The curriculum entails a series of related courses designed to provide initial qualification training for the AOC and is focused on teaching students how to utilize systems necessary to produce an ATO and ACO with an emphasis on the command and control of airpower to support a JFC's campaign plan.<sup>80</sup> The Joint Combat Airspace Manager's course, taught at the FTU, currently does not contain any instruction on airspace management during stability operations.<sup>81</sup> The addition of formal block training, focused on stability operations, would better prepare AOC airspace managers in dealing with the full spectrum of conflict. The training should include familiarization with the international civil aviation agencies, drafting AIPs and MOAs, dealing with host nation aviation officials as well as techniques for safely integrating civil and military air traffic. As a sign of progress, the author has been invited to the FTU to give a briefing on ACA lessons learned during stability operations for OEF/OIF. The briefing is scheduled to be taped and incorporated into future classes.<sup>82</sup>

The fourth recommendation presented here involves designating the USAF as the DoD Executive Agent for airspace control during stability operations. According to Department of Defense (DoD) Directive 5101.1, a DoD Executive Agent is the head of a DoD component "to whom the Secretary of Defense has assigned specific responsibilities, functions, and authorities to provide defined levels of support for operational missions, or administrative or other designated activities."<sup>83</sup> In order to enhance the unity of effort of DoD, Department of State

(DoS), and key international aviation agencies, it is recommended that the USAF be designated as the DoD Executive Agent for airspace control and integration with nation's other than the U.S. in time of war and military operations other than war. It is proposed this designation be accompanied by direct liaison authority with DoS, FAA, and applicable international agencies such as ICAO and IATA.

Assigning the USAF this responsibility would create a formal focal point within the DoD that would be required to standardize coordination of international airspace and air traffic procedures in support of military operations. The USAF would be responsible for assisting the regional combatant commands during stability operations. This will allow the Combatant Commands and their components to focus on war fighting. Regardless of which service component is assigned ACA, the USAF would be responsible for augmenting their planning staffs to provide corps expertise in coordinating airspace control during stability operations. Additionally, the USAF would be responsible for integrating DoS and applicable international agencies into joint and Coalition exercises. This will help exercise planners to develop more robust stability operations scenarios versus treating it as an exercise afterthought. Additionally, these exercises would force planners to think through these scenarios prior to execution as well as provide an important venue for developing relationships with other key agencies.

### ***Conclusion***

In summary, this paper examined the issues and challenges faced by COMUSCENTAF while exercising his delegated ACA during stability operations. In doing so, a brief history of Afghanistan ATC and commercial aviation was presented. From there, the events leading up to U.S. forces securing Afghan airspace in support of OEF was explained. Presented next was a description of the transition from military ATC to contingency contract control as well as the

stand-up of the nationwide ACC. After the necessary background information was presented, five overarching areas were analyzed to illustrate the unique challenges of an ACA during stability operations. These issues ranged from the difficulties of mixing military and civil air traffic in a combat zone to a look at why current doctrine does not meet current practice. Of the nearly countless issues faced by an ACA during transition to and sustainment of stability operations, the ones presented in this paper were chosen to best illustrate the complexities and the inherent breadth and depth of the issues involved. Finally, four recommendations were offered, ranging from the simple addition of block training to the AOC FTU to assigning the USAF as DoD Executive Agent responsible for tackling these issues across the joint spectrum. The overall intent of this analysis was to demonstrate the importance of going well beyond “thinking about airspace control in stability operations” to actually training, planning and organizing for it.

In closing, it is important to remember that when the U.S. goes to war, it goes as a nation bringing all its instruments of power to bear upon the enemy. The U.S. does not go to war simply as the DoD. The importance of providing for aviation safety while helping Afghanistan is undeniable. The key lesson for the operational-level commander bearing the burden of ACA in stability operations is this: U.S. military airpower and capabilities are second-to-none and getting better every day. Delivering precision guided munitions at a place and time that achieves desired effects can have tactical, operational or strategic implications. However, running the national airspace structures of a sovereign nation sets squarely in the strategic realm; and getting it right will pay huge dividends toward achieving a better state of peace.

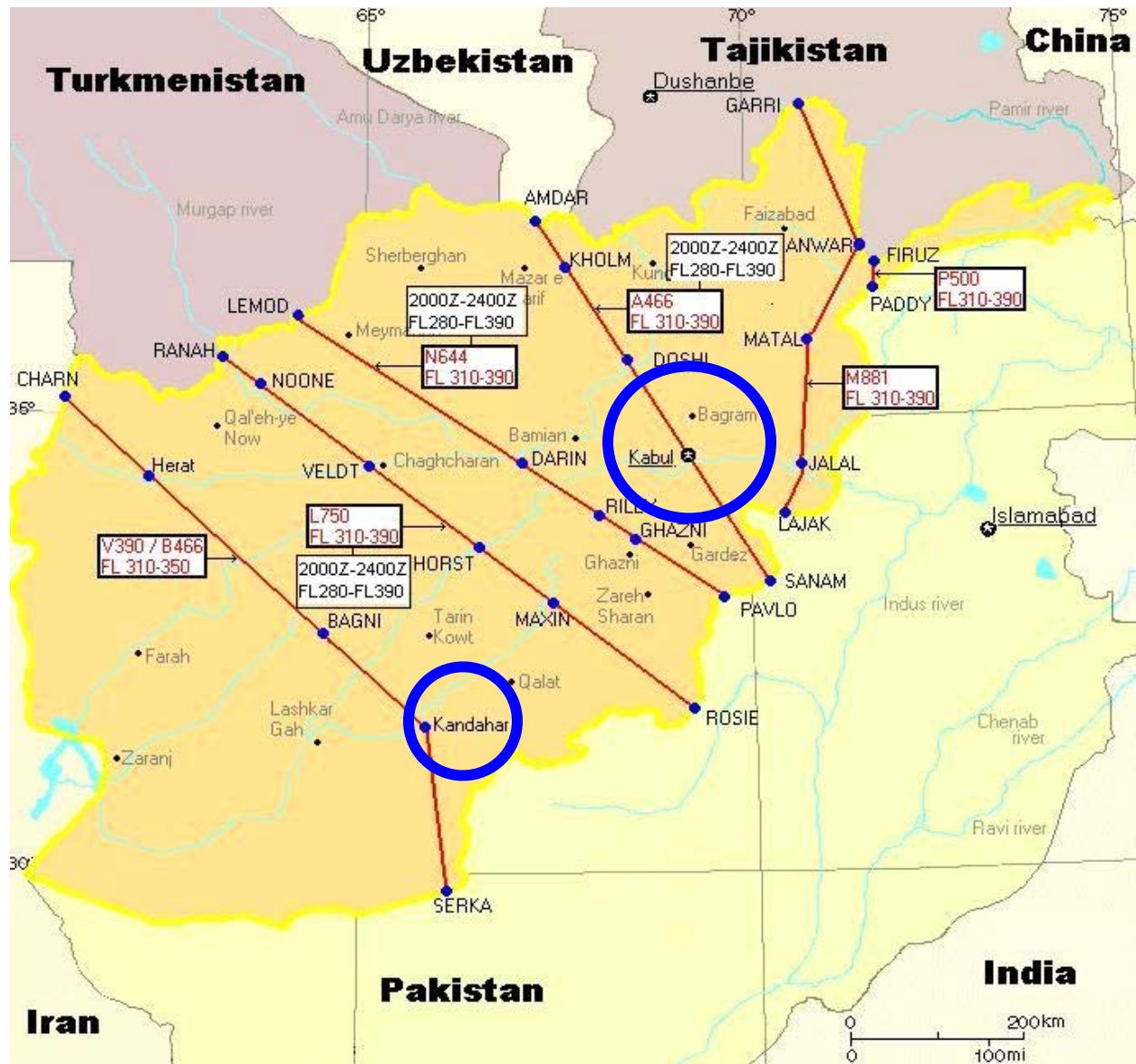
## APPENDIX A

### Key Events Timeline for Outsourcing Military ATC in Support of OEF

DATE	ACTION
Nov 01	COMUSCENTAF requested Air Staff assistance in developing plan to reconstitute military ATC deployed in support of OEF
Dec 01	Air Staff team visited AOR; developed three-phase concept plan (CONPLAN)
Jan 02	Air Staff delivered CONPLAN to COMUSCENTAF; plan approved
Mar 02	<ul style="list-style-type: none"> <li>- USCENTAF A3 organized a tiger team to 'operationalize' the CONPLAN</li> <li>- Project stalled; staff overcame with OEF support</li> </ul>
July 02	Outsource tiger team held first meeting; Statement of Work (SOW) developed
Sep 02	<ul style="list-style-type: none"> <li>- Outsource tiger team held second meeting; SOW finalized, AFCAP chosen as contract vehicle</li> <li>- Scope of contract: 5 terminal locations (2-Afghanistan, 1-Pakistan, 1-Uzbekistan, 1- Kyrgyzstan) &amp; 1 en route center (Afghanistan)</li> </ul>
Dec 02	<ul style="list-style-type: none"> <li>- En route center withdrawn from scope of contract; plan changed to use USAF controllers to stand-up en route services from Kandahar</li> </ul>
Jan 03	<ul style="list-style-type: none"> <li>- USCENTAF/AFCAP conducted site surveys at all 5 locations</li> <li>-- Survey team determined outsource of all locations to be feasible</li> <li>- 10 USAF controllers deployed to Kandahar to set up an en route center</li> </ul>
Feb 03	<ul style="list-style-type: none"> <li>- AFCAP delivered site specific management plan (SSMP) to USCENTAF; SSMP outlined how contractor intended to provide service</li> </ul>
Mar 03	<ul style="list-style-type: none"> <li>- OIF began; delayed outsource initiative in support of OEF</li> <li>- USAF controllers redeployed from Kandahar; mission unsuccessful</li> </ul>
Jul 03	COMUSCENTAF approved SSMP/funds necessary to begin outsource in support of OEF
Aug 03	AFCAP contractor mobilized (given formal notice to proceed)
Dec 03	<ul style="list-style-type: none"> <li>- Outsource of 4 terminal locations completed (2-Afghanistan, 1-Uzbekistan, 1- Kyrgyzstan)</li> <li>-- Terminal location in Pakistan removed from contract scope</li> </ul>
Jan 04	<ul style="list-style-type: none"> <li>- En route center project officially added back to contract scope;</li> <li>-- USCENTAF/AFCAP conducted site survey; Kabul chosen as en route site</li> </ul>
Feb 04	En route center site survey results briefed to COMUSCENTAF; approved
Mar 04	AFCAP contractor mobilized (given formal notice to proceed with en route project)
Apr 05	En route center opened; marked beginning of IFR service for the country

## APPENDIX B

Map of Afghanistan Overflight Airway System<sup>84</sup>



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<sup>1</sup> Art Gumtau, MidWest Air Traffic Control, Chief Controller, Kabul Area Control Center, interviewed by author, 19 March 2005.

<sup>2</sup> Ibid.

<sup>3</sup> Ibid.

<sup>4</sup> Joint Publication 5-00.1, *Joint Doctrine for Campaign Planning*, 25 January 2002., II-16.

<sup>5</sup> Lt Gen T. Michael Moseley, Commander, USCENTAF, memorandum to Minister Saddeq, Afghan Minister of Civil Aviation and Tourism, 27 Jan 03.

<sup>6</sup> Art Gumtau interview.

<sup>7</sup> Dan Stein, and Joshua Sussman, "Afghanistan Civil Aviation Sector: Definitional Mission Study," (Bethesda, MD: The Berkeley Group Inc for the US Trade and Development Agency, 2002)., 5.

<sup>8</sup> Ibid.

<sup>9</sup> Art Gumtau interview.

<sup>10</sup> Ibid.

<sup>11</sup> Ibid.

<sup>12</sup> Ibid.

<sup>13</sup> Mr. Jar'rar, Chief Controller, Afghanistan Flight Information Center, Kabul, Afghanistan, interviewed by author, 7 January 2004.

<sup>14</sup> "History of Ariana Airlines", *National Airlines of Afghanistan*, 2005, on-line, Internet, 20 February 2005, available from <http://www.flyariana.com/>.

<sup>15</sup> Ibid.

<sup>16</sup> Ibid.

<sup>17</sup> Ibid.

<sup>18</sup> Ibid.

<sup>19</sup> Ibid.

<sup>20</sup> Art Gumtau interview.

<sup>21</sup> Marian Edmunds, "No Fly Zone: Avoiding Afghan Airspace," 7 December 2001, on-line, Internet, 20 February 2005, available from <http://frequentflyer.oag.com/backissues/12082001/fl20701-3.asp>.

<sup>22</sup> "Regional Air Movement Control Center," 2005, on-line, Internet, 20 February 2005, available from <http://ramcc.dtic.mil/index.htm>.

<sup>23</sup> Ibid.

<sup>24</sup> Dennis Steele, "Another Rendezvous With Destiny," *Army Magazine*, April 2002., on-line, Internet, 4 February 2005, available from

<http://www.ausa.org/www/armymag.nsf/0/7BF16652C91B9F2A85256B83005EDCA4?OpenDocument>.

<sup>25</sup> Ibid.

<sup>26</sup> Ibid.

<sup>27</sup> Republic of Afghanistan Aeronautical Information Publication (AIP), 3<sup>rd</sup> Ed., 17 Feb 2005., 74.

<sup>28</sup> Joint Publication 3-52, *Joint Doctrine for Airspace Control in the Combat Zone*, 30 August 2004, vii.

<sup>29</sup> Col Edward J. Monahan, USCENTAF/JA, memorandum to USCENTAF/CC, subject: ACA Liability Assessment - Afghanistan, 20 Jan 04."

<sup>30</sup> Joint Publication 3-52, *Joint Doctrine for Airspace Control in the Combat Zone*., 30 August 2004, I-3.

<sup>31</sup> Lt Gen Moseley, T. M., USCENTAF/CC. Memorandum of Arrangement. With the Ministry of Civil Aviation and Tourism of the Interim Administration of Afghanistan and the International Civil Aviation Organization. Subject: Memorandum of Arrangement, 11 February 2002.

<sup>32</sup> Ibid."

<sup>33</sup> Maj Lane, Harry J., USCENTCOM/CCJ5 Staff, interviewed by author, 19 January 2005.

<sup>34</sup> Ibid.

<sup>35</sup> Ibid.

<sup>36</sup> Ibid.

<sup>37</sup> In parallel, the author served as Chief, Combat Airspace in support of OIF and is credited with designing the tactical airspace structure for Phase III operations. Additionally, the author oversaw the complete airspace reversion to support the Phase IV integration of civil and military aviation in Iraq.

<sup>38</sup> James A. Mitchell, Readiness Management Support, L.C., Panama City, FL, interviewed by author, 29 Jan 05.

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- <sup>39</sup> "Air Force Contract Augmentation Program." 2005, on-line, Internet, 2 February 2005. available from <http://www.afcap.com/capabilities/capabilities01.html>.
- <sup>40</sup> Ibid.
- <sup>41</sup> James A. Mitchell interview.
- <sup>42</sup> "Regional Air Movement Control Center," 2005, on-line, Internet, 20 February 2005, available from <http://ramcc.dtic.mil/index.htm>.
- <sup>43</sup> Joint Publication 3-52, *Joint Doctrine for Airspace Control in the Combat Zone*, 30 August 2004, vii.
- <sup>44</sup> Multiservice Procedures for Integrated Combat Airspace Command and Control, June 2000, I-3.
- <sup>45</sup> Joint Publication 3-52, *Joint Doctrine for Airspace Control in the Combat Zone*, II-3.
- <sup>46</sup> Eng. Raz Mohammed Alami, Technical Deputy Minister, Afghan Ministry of Civil Aviation and Tourism, interviewed by author 7 January 2004.
- <sup>47</sup> Mr. Jar'rar, Chief Controller, Afghanistan Flight Information Center, Kabul, Afghanistan, interviewed by author, 7 January 2004.
- <sup>48</sup> Republic of Afghanistan Aeronautical Information Publication (AIP), 3<sup>rd</sup> Ed., 17 Feb 2005, 27.
- <sup>49</sup> Marian Edmunds, "No Fly Zone: Avoiding Afghan Airspace," 7 December 2001, on-line, Internet, 20 February 2005, available from <http://frequentflyer.oag.com/backissues/12082001/fl20701-3.asp>.
- <sup>50</sup> "Afghanistan (IRIN) Special Report Effect of Sanctions on the Aviation Sector," 14 May 2001, on-line, Internet, 15 February 2005, available from <http://www.institute-for-afghan-studies.org/>.
- <sup>51</sup> Ibid.
- <sup>52</sup> Andrew Clark, "Fuel costs 'will push airlines to financial disaster'," 5 April 2005, on-line, Internet, 9 April 2005, available from <http://www.guardian.co.uk/oil/story/0,11319,1452444,00.html>.
- <sup>53</sup> Lt Gen Moseley, T. M., USCENTAF/CC. Memorandum of Arrangement. With the Ministry of Civil Aviation and Tourism of the Interim Administration of Afghanistan and the International Civil Aviation Organization. Subject: Memorandum of Arrangement, 11 February 2002.
- <sup>54</sup> Col Edward J. Monahan, USCENTAF/JA, memorandum to USCENTAF/CC, subject: ACA Liability Assessment - Afghanistan, 20 Jan 04.
- <sup>55</sup> Ibid.
- <sup>56</sup> Ibid.
- <sup>57</sup> "North Atlantic International General Aviation Operations Manual", 3<sup>rd</sup> Edition, Definition of Terms, Federal Aviation Administration, June 1999.
- <sup>58</sup> Col Edward J. Monahan, USCENTAF/JA, memorandum to USCENTAF/CC, subject: ACA Liability Assessment - Afghanistan, 20 Jan 04.
- <sup>59</sup> Lt Gen T. Michael Moseley, Commander, USCENTAF, memorandum to Minister Saddeq, Afghan Minister of Civil Aviation and Tourism, 27 Jan 03.
- <sup>60</sup> "Regional Air Movement Control Center," 2005, on-line, Internet, 20 February 2005, available from <http://ramcc.dtic.mil/index.htm>.
- <sup>61</sup> Senad Slatina, "Battle for Airspace," *The Bosnian Institute*, June - November 2002, on-line, Internet, 20 February, available from <http://www.bosnia.org.uk/default.cfm>.
- <sup>62</sup> Ibid.
- <sup>63</sup> Ibid.
- <sup>64</sup> Col Edward J. Monahan, USCENTAF/JA, memorandum to USCENTAF/CC, subject: ACA Liability Assessment - Afghanistan, 20 Jan 04.
- <sup>65</sup> Ibid.
- <sup>66</sup> Lavery, David T., AFSCO/CR, memorandum to Jean Lausberg, United Nations Field Security Coordination Officer (FSCO) Afghanistan, subject: United Nations Security Incident Report, Afghanistan, 3 Feb 05.
- <sup>67</sup> Ibid.
- <sup>68</sup> Ibid.
- <sup>69</sup> Kabul is located approximately 27 miles south of Bagram Airfield. USAF contract air traffic controllers located at Bagram provide limited radar service into and out of Kabul.
- <sup>70</sup> William Matthew, "The Deal on Contractors, How Much is too Much in Providing DoD Services?," *Armed Forces Journal*, November 2004, 10-15.
- <sup>71</sup> James A. Mitchell interview.
- <sup>72</sup> Ibid.
- <sup>73</sup> Ibid.



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- <sup>74</sup> Matthew, "The Deal on Contractors, How Much is too Much in Providing DoD Services?"
- <sup>75</sup> Ibid.
- <sup>76</sup> Ibid.
- <sup>77</sup> Bryan T. Newkirk, and Karen W. Currie, "Global Combat Support System: a Must for the Warfighting Commander Contractors in Contingency Operations: Panacea or Pain," *Air Force Journal of Logistics*, Fall 2004, 14.
- <sup>78</sup> Ibid.
- <sup>79</sup> Joint Publication 3-52, *Joint Doctrine for Airspace Control in the Combat Zone*, III-1, III-2.
- <sup>80</sup> Capt Danny Cooper, "AOC Training Unit Opens for Business," 13 June 2003, on-line, Internet, 6 March 2005, available from <http://www2.acc.af.mil/acnews/jun03/03206.html>.
- <sup>81</sup> Michael Hollis, 505 TRS, Combat Airspace Course Director, Hurlburt Field, interviewed by author, 10 February 2005.
- <sup>82</sup> Ibid.
- <sup>83</sup> DOD Directive (DODD) 5101.1, DoD Executive Agent, 3 September 2003.
- <sup>84</sup> Republic of Afghanistan Aeronautical Information Publication (AIP), 3<sup>rd</sup> Ed., 17 Feb 2005, 74.

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